



**FOR IMMEDIATE RELEASE**

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**Drought Update for the Week of August 30**

**SALT LAKE CITY** (Sept. 2, 2021) – Recent rains and cooler temperatures have helped improve soil conditions and downgraded more areas of the state from “extreme” drought to “severe” drought. More than 88% of the state is now in “extreme” or “exceptional” drought compared to 98.75% last week, according to the [U.S. Drought Monitor](#).

Changing conditions have also reduced outdoor watering demand. As a result, reservoir levels stayed steady the past two weeks. Rain does little to refill reservoirs, with about 95% of our water coming from snowpack.

“We used stored water this summer, essentially depleting our reserves,” said Utah Department of Natural Resources Executive Director Brian Steed. “It will take wet soils, steady storms and a great snowpack to help make up the water deficit.”

Extreme drought watering recommendations have been in place this summer: three times a week for southern Utah and two times a week for northern Utah. But with longer nights and dropping temperatures, those recommendations are changing. Check the [Weekly Lawn Watering Guide](#) for customized recommendations in each county. These recommendations are based on extensive data and simplified into how many days per week to water.

The following [drought](#) impacts from the week of Aug. 30 are compiled by the Utah Divisions of [Water Resources](#), [Water Rights](#), [State Parks](#), the [Department of Environmental Quality](#) and the [Department of Agriculture & Food](#).

**At-a-glance changes for the week:**

- The Weber-Morgan Health Department has issued a harmful algal bloom Warning Advisory for the Middle Inlet Day Use area at Pineview Reservoir. In Zion National Park, the North Fork of the Virgin River and North Creek remain under Warning Advisories, while La Verkin Creek remains under a Health Watch.
- Secondary water systems that deliver untreated irrigation water used on lawns and gardens are starting to shut down early due to a lack of supply.



- Thirty-two of Utah's largest 42 reservoirs are below 55% of available capacity (31 last week). (Utah Lake decreased slightly to below 55%.) Overall statewide storage is 51% of capacity, the same as last week.
- Of the 98 measured streams, 46 flowed below normal this week compared to 31 last week because of heavy rain.
- Due to large rain events last week, we saw a significant increase in natural flow for several systems. This meant more direct flow rights were being delivered. Effects of the prior week's rain events did not last. This week in those same systems only higher priority water rights are being delivered.
- Boat ramp closures remain the same as last week, with 11 closures at nine state parks, including Jordanelle, Antelope Island, Echo, Hyrum, Millsite, Piute, Rockport, Willard Bay and Yuba. However, at least one additional closure is expected. Gunlock is scheduled to close its boat ramp by this weekend. Caution advisories have been issued for seven additional state park boat ramps. View conditions [here](#).
- Drought pressures continue to negatively impact Utah farmers and ranchers causing decreased yields and extreme additional expenses for feed, transportation and water hauling.
- Hay continues to be in high demand and at higher than average prices with hay and roughage supplies rated at 93% short or very short and prices approximately double those of last year.
- Agricultural irrigation water supplies are rated as 86% short or very short compared with just 3% short at this time in 2019.
- Pasture and rangeland conditions have worsened somewhat since last week and are rated as 72% short or very short compared to just 6% short or very short at this time in 2019.

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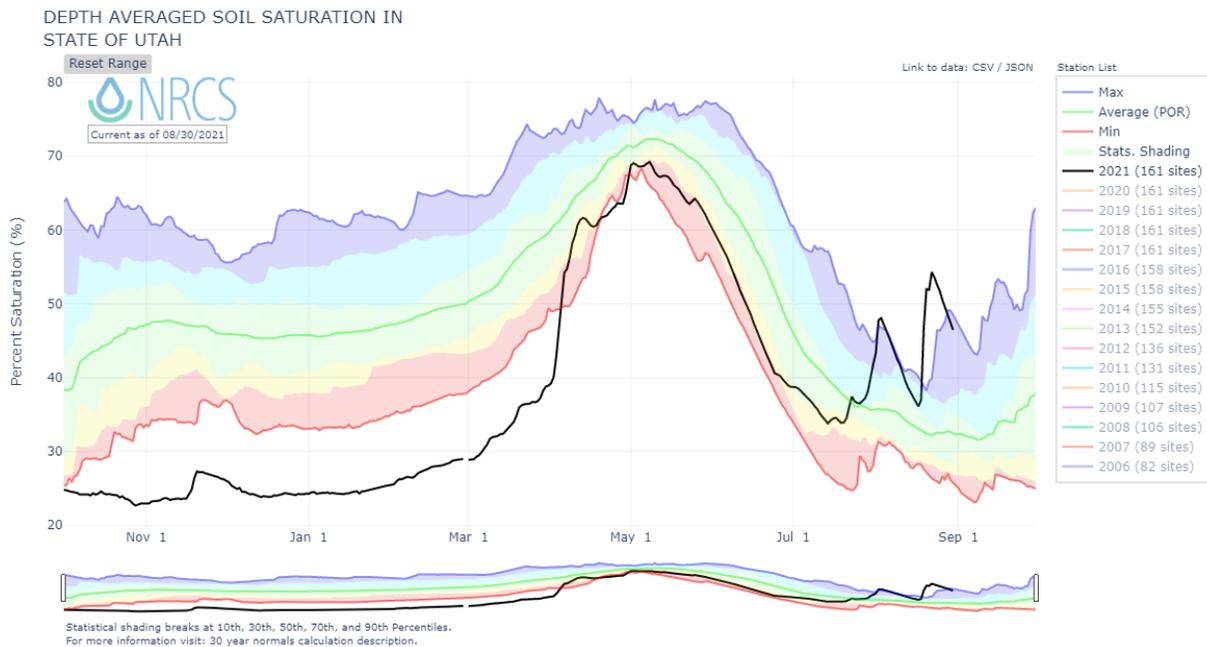
## **FULL REPORT: WEEK OF AUG. 30**

### **Precipitation and soil moisture**

- Precipitation accumulation (as measured at NRCS SNOTEL sites) continues to be well below average. To restore conditions to "average" for the year, Utah still needs about 8.5 inches of rain: 6.5 inches to cancel the deficit and 2 inches to account for the precipitation traditionally accumulated in September.
- Overall (mountain and valley locations), the state has seen 75.3% of the precipitation typically received in a normal water year (Oct. 1 through Sept. 30). Much of that precipitation is from heavy rains late in the year, which is less beneficial for collection and storage. Reservoirs are typically designed to collect high mountain snowmelt. Rainfall often occurs at an elevation too low to collect or may contain too much sediment and debris to be beneficial for filling reservoirs. Rainfall is essential to increasing the soil moisture and helps to reduce the demand as people shut off their sprinklers.
- To get streams running at healthy levels while filling reservoirs, Utah needs late summer and early fall storms to return soil moisture levels to normal, which will help snowpack

runoff make it to streams and reservoirs rather than get absorbed by dry soils. The state also needs an above-average snowpack to refill reservoirs.

- Air temperatures for the week were 1 degree Fahrenheit below average.
- Soil moisture remains high at 14.1% above average (21.2% last week) for this water year. Wet soils are critical in the fall as the state begins to accumulate its winter snowpack. As seen in the chart below, significant increases and decreases in soil moisture are typical for late summer.

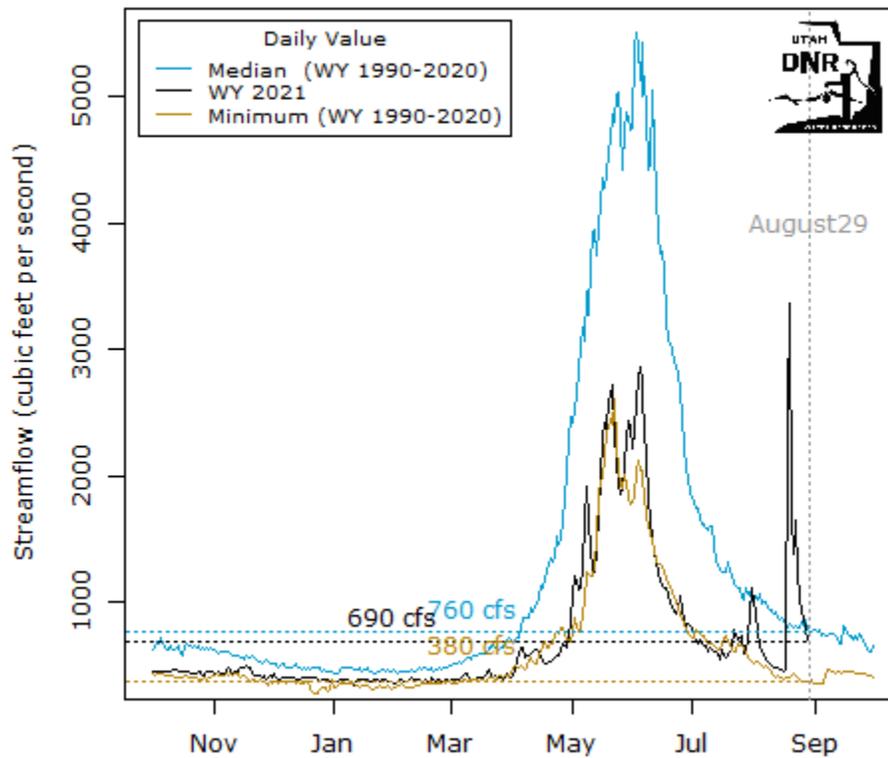


Recent rainstorms are reflected as a significant increase in soil moisture followed by a significant decline in the state soil moisture sensors (found at mountain [SnoTel sites](#)). Healthy soil moisture levels allow snowpack runoff to enter the streams and reservoirs rather than get absorbed by dry soils. Monsoonal patterns never occurred the last two years, leading to record dry soils in October 2020 and throughout the winter (reflected in the graph above).

## **Streamflows**

- Cumulative flow of 28 headwater streams is lower than the previous 30 years.
- Forty-six (31 reported last week) of Utah's 98 streams reporting data are flowing below normal. Temporary high flows due to rainstorms have receded and streams are returning to lower flows typical of this year.
- Three streams are flowing at their lowest levels ever recorded, one more than last week.
- Daily flow from 28 headwater streams has decreased as the effect from rainfall recedes. Flow is currently between the 30-year median and minimum.

## Daily Flow from 28 Headwater Streams



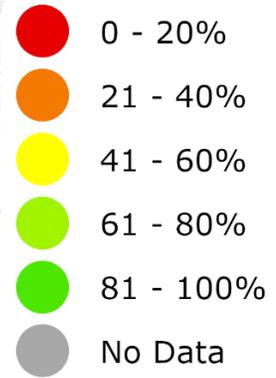
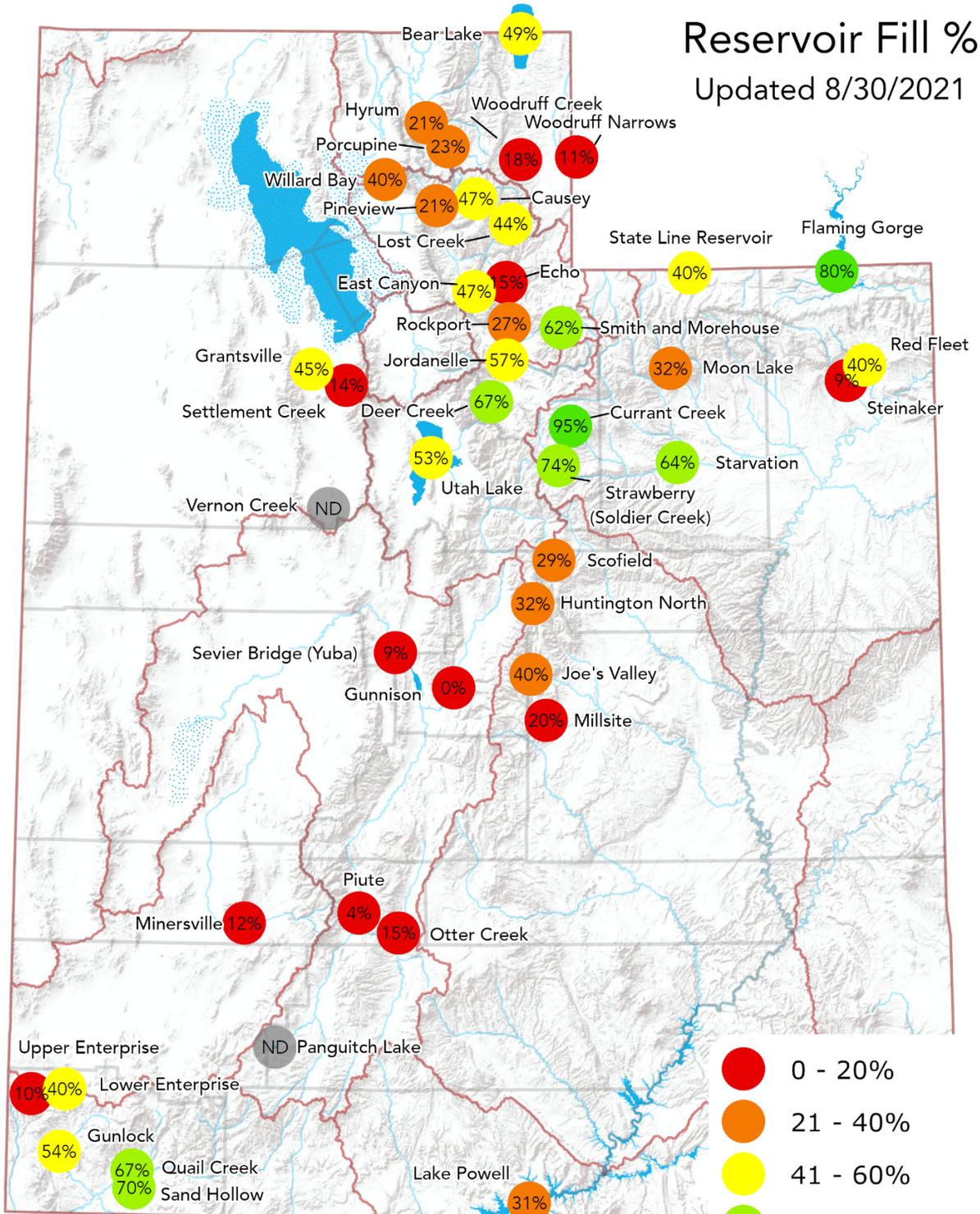
Flows for 28 headwater streams were added together to show how Utah's water supply is being affected. This chart shows the Water Year (WY) from October to September as compared to the median and minimum values (1990-2020). Significant increases from recent storms can be seen. Unfortunately, a few days of high flows don't make up for over a year of near-record low flows.

### **Reservoir and Lake Levels**

- The capacity of major reservoirs statewide remained steady at 51%.
- Thirty-two of Utah's largest 42 reservoirs are below 55% of available capacity (31 last week with Utah Lake decreasing slightly to below 55%).
- The Great Salt Lake's elevation dropped to 4190.9, about 6 inches below the record low.

# Reservoir Fill %

Updated 8/30/2021



Data Sources  
 Bureau of Reclamation, Bear River Commission,  
 Emery Water Conservancy District,  
 Sevier River Water Users Association,  
 Washington County Water Conservancy District

### **Drought Effects on Priority Distribution of Water Rights in Utah (updated Aug. 30)**

Water rights are distributed by the state engineer with priority going to the earliest rights. For example, a water right established in 1889 is entitled to receive its full flow before water rights established in 1890 or later can receive any water. This principle is called the “Prior Appropriation Doctrine” or “first in time, first in right.” The earliest water rights in Utah are called “direct flow” rights, meaning they cannot be stored. Storage reservoirs were built later on, so storage rights generally have priority dates later than direct flow rights. However, some “high” water rights (direct flow rights with late priority dates) exist.

While public water suppliers own some water rights, others are held by individuals like farmers and ranchers. Priority distribution happens every year, not just during droughts, and occurs irrespective of the type of use. Most water rights are fully or partially curtailed by mid-summer when the natural flow of a stream drops following spring runoff. The term “natural flow” refers to the total supply of a stream, which is generally different from the flow of the stream at any particular point.

Natural flow on complex systems is determined using accounting models developed by the Division of Water Rights. Water can be stored on the system when the natural flow is greater than 100% of the direct flow rights. When the natural flow drops below 100% of the direct flow rights, these rights are reduced according to priority date. Storage, if available, can be released to make up all or part of the deficit. The amount of storage available on each system is a function of the specific projects developed on the system over the last hundred-plus years. This year has seen an early decrease in natural flow because of very little spring runoff. In previous years systems were generally storing water in mid-June, sometimes in considerable amounts, while 2021 has seen some of the earliest water rights being curtailed.

While statewide, there are many different river systems, the information below highlights water rights priorities, natural flow and direct flow on just four of them. CFS below stands for cubic feet per second.

**Middle Bear River** – Priorities: Direct Flow (1860 - 1909), Storage (1911), High Rights (1914 - 1989)

<i>Date</i>	<i>Priority from River</i>	<i>Natural Flow</i>	<i>% Direct Flow Rights</i>
Aug 26, 2019	1899	689 cfs	49%
Aug 26, 2020	1899	740 cfs	53%
Aug 26, 2021	1897	651 cfs	47%

- Currently, only 47% of the direct flow water rights are being met with earliest priority rights being fulfilled from 1860 to 1897.

**Upper Provo River** – Priorities: Direct Flow (1<sup>st</sup> Class - 17<sup>th</sup> Class), Storage

<i>Date</i>	<i>Priority from River</i>	<i>Natural Flow</i>	<i>% Direct Flow Rights</i>
Aug 30, 2019	50% 1 <sup>st</sup> Class	78 cfs	17%
Aug 30, 2020	30% 1 <sup>st</sup> Class	47 cfs	10%
Aug 30, 2021	60% 1 <sup>st</sup> Class	94 cfs	21%

- Currently, 21% of the direct flow water rights are being met, consisting of 60% of 1st Class rights.

**Upper Duchesne River** – Priorities: Direct Flow (1900 - 1964), Storage (1964)

<i>Date</i>	<i>Priority from River</i>	<i>Natural Flow</i>	<i>% Direct Flow Rights</i>
Aug 29, 2019	1938	363 cfs	33%

Aug 29, 2020	1910	189 cfs	17%
Aug 29, 2021	Storage	455 cfs	41%

- Currently, 41% of the direct flow water rights are being met with the earliest priority rights being fulfilled from 1900-1964.

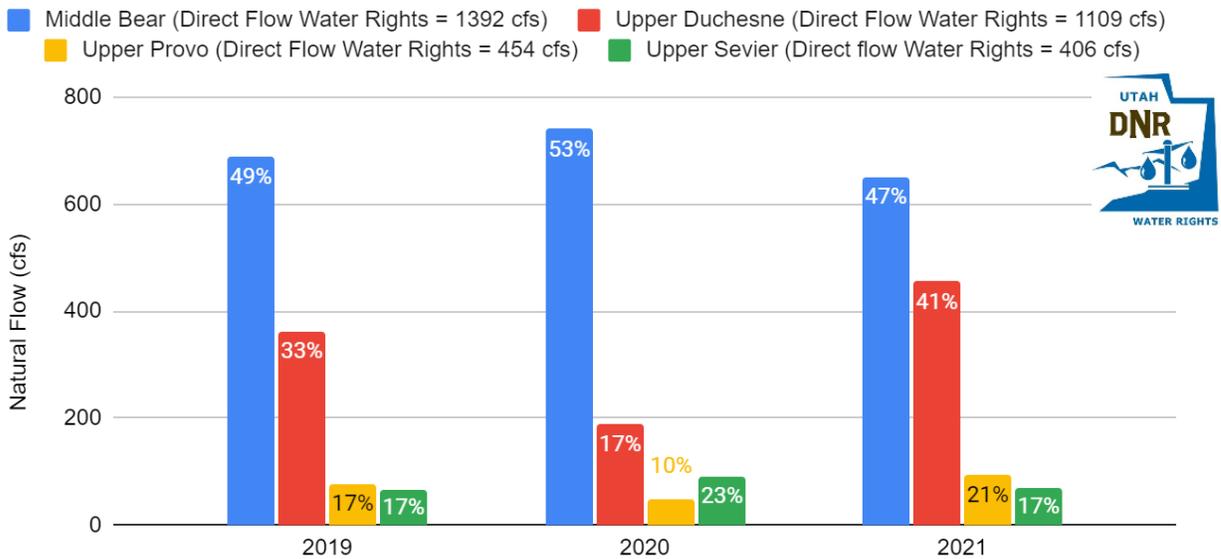
**Upper Sevier River – Priorities: Direct Flow (1<sup>st</sup> Class – 3<sup>rd</sup> Class), Storage**

Date	Priority from River	Natural Flow	% Direct Flow Rights
Aug 29, 2019	23% 1 <sup>st</sup> Class	67 cfs	17%
Aug 29, 2020	31% 1 <sup>st</sup> Class	92 cfs	23%
Aug 29, 2021	24% 1 <sup>st</sup> Class	71 cfs	17%

- Currently, 17% of the direct flow water rights are being met, consisting of 24% of 1st Class rights.

### Natural Flow Distribution on Four River Systems (Aug 30)

Percent Values Greater than 100 Indicate Water Being Stored



### Well Replacements

In addition to surface water rights, the state engineer oversees groundwater appropriation and construction of groundwater wells. As groundwater conditions change, well owners may need to replace their well. This may be due to issues with the existing well or the need to drill deeper. When this happens, a water user files either a replacement or renovate application. In some cases, a change application may need to be filed. This is dependent on the individual status of the user’s water right.

- One new well-replacement application was filed in the last week. The total number of replacement and deepening requests this year is 107 statewide.
- As a comparison, there were 113 in 2020 and 102 in 2019. The average annual count during the past five years is 107.